

NEW SPECIES OF GRAMINEAE FROM SOUTH-EASTERN QUEENSLAND

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Summary

The following 8 species of *Gramineae* from south-eastern Queensland are described as new: *Bothriochloa bunyensis*, *Dichanthium queenlandicum*, *Sporobolus laxus*, × *Cynochloris reynoldsensis*, *Dichelachne parva*, *Arundinella grevillensis*, *Paspalidium grandispiculatum* and *Eragrostis longipedicellata*.

During the course of preparation of *A Key to Queensland Grasses* (Simon, 1980) a number of undescribed species were referred to in the key by reference to individual specimens. As the *Gramineae* account for the forthcoming *Flora of South-Eastern Queensland* is to be written up soon it was thought opportune to formally describe these species for inclusion in the flora account.

Bothriochloa bunyensis B. K. Simon, species nova affinis *B. bilobae* S. T.

Blake sed internodiis rachidis longioribus, pilis calli, internodiorum rachidis et pedicelli brevioribus, rhizomatibus differt. **Typus:** Queensland, Bunya Mountains, *Simon* 3530 (BRI256874, holotypus; isotypi, AD, B, BRI, CANB, K, L, MEL, MO, NSW, NT, PERTH, PRE).

Perennial to 60 cm tall with thin, many-noded rhizomes. Culms solitary, geniculately ascending to erect, glabrous, smooth, 2-4-noded, nodes glabrous, deep purple in colour. Leaf sheaths slightly keeled, becoming fibrous at maturity, slightly hairy, with the hairs thicker at the margins and arising from tubercled bases. Ligule membranous with a shortly ciliolate fringe, to 1 mm long. Leaf blades linear to 12 cm long, with an acuminate apex, flattened with scaberulous margins and apices. Inflorescence digitate to subdigitate with 2-4 pedunculate stiffly spreading racemes which are 5-12-jointed and 5-10 cm long. Spikelet pairs heterogamous, the pedicelled spikelet reduced to a long inrolled lower glume. Rhachis internodes and pedicels 7-8 mm long, linear, filiform, finely furrowed throughout most of their lengths, with ciliate margins. Sessile spikelet 8-9 mm × 1.7-2 mm, dorsally compressed; callus oblique, scar obtuse ca 0.3 mm in diameter, callus hairs to 3 mm long. Lower glume 2-keeled, with a row of rigid bristles on the keels and flat on the back in the apical 1/3, with the margins more rounded and incurved and the back more convex towards the base, crustaceous with hyaline margins, 13-nerved between the keels, the back scabrous towards the apex, papillate towards the base. Upper glume slightly smaller than the lower with a cymbiform keel scabrous towards the apex, 3-nerved. Lower lemma about half as long as the glumes, a broad hyaline membrane. Upper lemma linear, 4 mm long, shortly 2-lobed; awn arising from the sinus of the lobes, ca 2 cm long, reddish-brown, stout, scaberulous all over, geniculate, the column and apical portion of about equal length. Palea a short hyaline membrane ca 1 × 1 mm, with a very erose apical margin. Anthers 3, 1.5-2 mm long. Lodicules cuneate, hyaline, ca 1 mm long, with branching nerves. Grain ca 3 × 1 mm, reddish brown, embryo ca 0.4 mm long. Pedicelled spikelet consisting of a subulate lower glume with inrolled scabrous margins, 12-13 mm long, 7-nerved (Fig. 32).

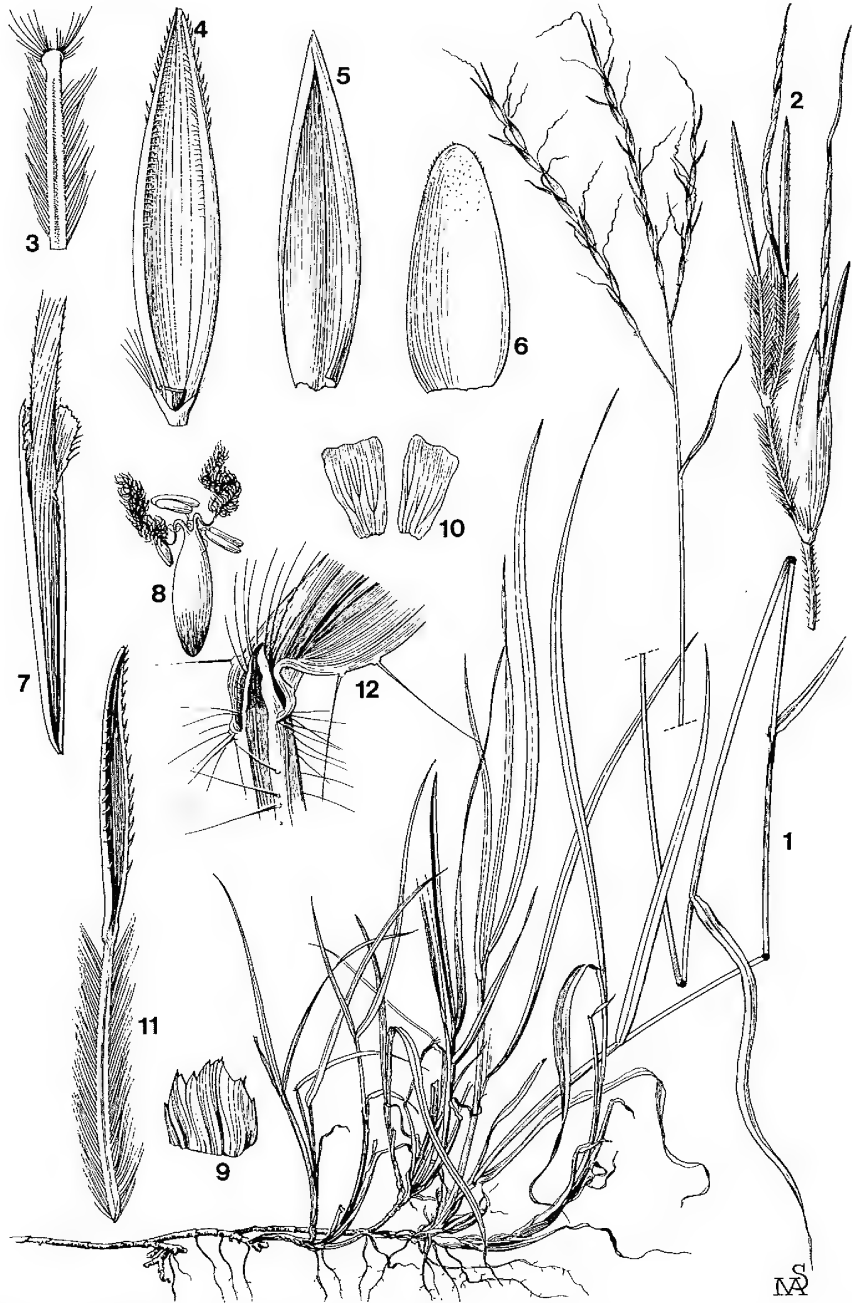


Figure 32. *Bothriochloa bunyensis*. 1, habit ($\times 2/3$); 2, terminal portion of raceme ($\times 4$); 3, rhachis internode ($\times 8$); sessile spikelet; 4, lower glume ($\times 8$); 5, upper glume ($\times 8$); 6, lower lemma ($\times 8$); 7, upper lemma with base of awn ($\times 8$); 8, flower ($\times 17$); 9, upper palea ($\times 17$); 10, lodicules ($\times 17$); 11, pedicelled spikelet ($\times 8$); 12, junction of leaf-sheath and blade showing ligule ($\times 8$). From Peart 354.

Queensland. DARLING DOWNS DISTRICT: Bunya Mountains, Horse Gully, May 1976, *Peart* in BRI 217948 (BRI); Mar 1977, *Peart* 354 (BRI, CANB); May 1979, *Simon* 3525 (BRI); Bunya Mountains, Sterling's grazier ranch, near Guest House, Mar 1944, *Clemens* in BRI 045797, 045798 (BRI); Bunya Mountains, Munro's Camp, Jan 1980, *Simon* 3529 (BRI); Bunya Mountains, Mt Mowbullan, Jan 1980, *Simon* 3530 (AD, B, BRI, CANB, K, L, MEL, MO, NSW, NT, PERTH, PRE).

For key characters distinguishing this species from other Australian species of *Bothriochloa* see Simon (1980) where *B. bunyensis* is referred to as *B. sp.* Peart 354.

This species appears to be restricted to two areas of the Bunya Mountains, one in Horse Gully at the base of the range on the southern access route and the other in the vicinity of the Sterling's property at the summit. It was first collected by Mrs M. S. Clemens in 1944 on the grassy slopes near the guest house, when it was suggested by the collector to possibly have been an African introduction, but it was not recollected until May 1976 from Horse Gully by Dr M. Peart from the Queensland Agricultural College, Lawes. The late S. T. Blake left some brief descriptive notes on the grass in the Queensland Herbarium without suggesting any name for it and was probably of the opinion that it was a new species. Although the genera *Bothriochloa* and *Dichanthium* have been united under *Dichanthium* by some workers (De Wet & Harlan 1966, 1970; Clayton, 1977), S. T. Blake (1969) expressed caution for such a step even though hybrids between members of the genera have been artificially produced. I agree with this view and regard the widely used character of the presence or absence of a translucent midline in the rhachis internodes and pedicels to be as good a generic character as used to separate many other grass genera. There is also a general tendency, in the Australian species at least, of the sessile spikelets of *Bothriochloa* to be acute at the apex compared with the more obtuse apices of the *Dichanthium* sessile spikelets. Furthermore the genera differs in their phytogeography in that *Dichanthium* is not native to the New World (Clifford & Simon, 1980). The translucent midline in *Bothriochloa bunyensis* is present, although it is not as distinct as in most of the other species of *Bothriochloa*.

Dichanthium queenslandicum B. K. Simon, species nova affinis *D. tenui* (R.Br.)

A. Camus sed racemis et spiculis longioribus differt. **Typus.** Queensland, 10 km E of Capella, *Simon* 2882 & *Bisset* (BRI 228113, holotypus; isotypi, CANB, K, MO).

Caespitose perennial to 80 cm tall. Culms solitary or rarely branched, erect, glabrous, smooth with a single groove, 4–5-noded, nodes prominently hairy. Leaf sheaths hirsute with the hairs arising from tubercled bases, hairier at the blade-sheath junction. Ligule membranous with a shortly ciliolate fringe, to 1.5 mm long. Leaf blades linear, to 18 cm long, flattened with scaberulous margins and apices, hirsute with the hairs arising from tubercled bases. Inflorescence a single raceme of paired spikelets to 10 cm long, rarely paired, up to 30-jointed. Spikelet pairs heterogamous. Rhachis internodes and pedicels ca 2.5 mm long, with hairs to 3 mm long arising mainly from the base and the apex on the rhachis internode and mainly from the apex on the pedicel, \pm terete. Sessile spikelet 7.5–8.5 \times ca 1.5 mm, dorsally compressed, straw-coloured to pale mauve; callus oblique, scar obtuse, ca 0.5 \times 0.3 mm, callus hairs white, to 0.3 mm long. Lower glume coriaceous, gently rounded on the back, winged at each side in the upper half, the wings with scabrous margins, apex ragged and irregular, 11-nerved. Upper glume coriaceous, as long as the lower glume, 3-keeled forming 2 longitudinal depressions between the keels, the apex acuminate. Lower lemma ca 5 mm long, a hyaline



Figure 33. *Dichanthium queenslandicum*. 1, habit ($\times 2/3$); 2, spikelet pair ($\times 8$); sessile spikelet; 3, lower glume, ventral view ($\times 8$); 4, upper glume, dorsal view ($\times 8$); 5, upper lemma and base of awn ($\times 8$); 6, lower lemma, flower and lodicules, and base of upper lemma ($\times 8$); 7, grain ($\times 8$); 8, lower glume ($\times 8$); 9, upper glume ($\times 8$); 10, lower lemma ($\times 8$); 11, upper lemma ($\times 8$); 12, base of pedicelled spikelet showing stamens, lodicules, glumes and lemmas ($\times 8$); 13, lodicules ($\times 17$). From *Simon 2897A & Jacobsen*.

membrane. Upper lemma linear, 3 mm long extending into a geniculate awn ca 2 cm long, dark brown and twisted in the lower half, pale and less twisted above. Anthers 2, ca 1 mm long. Lodicules cuneate, hyaline, ca 0.5 mm long. Grain ca 4×1.5 mm yellowish, embryo ca 0.4 mm long. Pedicelled spikelets ca 6×1.5 mm, male, straw-coloured to pale mauve. Lower glume coriaceous flattened to rounded on the back with scaberulous margins in the upper half, 11-nerved. Upper glume hyaline, ca 5×1 mm, 3-nerved. Lower lemma ca 4×0.75 mm, hyaline, nerveless; upper lemma linear, ca 3×0.5 mm, ragged at the apex. Anthers 2, ca 2 mm long. Lodicules cuneate, hyaline, ca 0.5 mm long (Fig. 33).

Queensland. LEICHHARDT DISTRICT: 10 km E of Capella, Dec 1975, *Simon* 2882 & *Bisset* (BRI, CANB, K, MO); 21 km SE of Clermont, Dec 1975, *Simon* 2897A & *Jacobsen* (BRI, L, NSW, NT); 4 km N of Emerald, Dec 1975, *Simon* 2923 & *Jacobsen* (BRI, AD, US), *Simon* 2924 & *Jacobsen* (BRI); 24 miles SE of Springsure, Mar 1970, *Younger* BRI 092795 (BRI); Gindie, Apr 1913, *Bick* BRI 191773 (BRI), Apr 1930, *Quodling* BRI 191774 (BRI), Apr 1930, *Jarrot* 3 (BRI); Emerald Downs, Apr 1975, *Jacobsen* E415 (BRI); 20 km W of Clermont, Nov 1975, *Jacobsen* E463 (BRI); Fernlees, Dec 1933, *Hock* 7 (BRI); 45 miles W of Nebo, Jun 1962, *Story & Yapp* 103 (BRI, CANB); 10 miles S of Nebo, Jun 1962, *Story & Yapp* 9 (BRI, CANB); Kerry Downs, Jun 1956, *Bisset* E10 (BRI). PORT CURTIS DISTRICT: Callide Valley, Apr 1937, *White* 10793 (BRI); between Dawes and Lawgi, Apr 1948, *Shaw & Bisset* BRI 045799 (BRI). DARLING DOWNS DISTRICT: Jimbour Plain, Mar 1951, *Bisset* S 762 (BRI).

For key characters distinguishing this species from other Australian species of *Dichanthium* see *Simon* (1980) where *D. queenslandicum* is referred to as *Dichanthium* sp. *Simon & Jacobsen* 2897A.

Specimens of *D. queenslandicum* have been collected since 1913, especially from the Emerald area. It occurs on black cracking clay in association mainly with other species of blue grasses (*Dichanthium* spp. and *Bothriochloa* spp.) but also with other grasses restricted to this soil type. It is known to be of good fodder value as noted by W. Hock in his notes accompanying his specimen No. 7 from Fernlees cited above:— "It is a very good class of grass which held its own until eaten out". Some of the earlier specimens were named *Andropogon annulatus* Forssk. var. *monostachya* F. Muell. but this name refers to what is now *Dichanthium fecundum* S. T. Blake, a different species. The late S. T. Blake tentatively suggested *D. queenslandicum* may be a new genus or a genus cover in the Queensland Herbarium, but there are no really outstanding features of the species which would place it outside the normal range of variation known for the genus *Dichanthium*.

Sporobolus laxus B. K. *Simon*, species nova affinis *S. dianderi* (Retz.) Beauv. sed ramis paniculae nudis (non ferentibus spiculas) per aliquam distantiam e base, tribus staminibus differt. **Typus:** Queensland, near Eagle Heights, *Simon* 2927, *Sharpe & Stanley* (BRI 228827 holotypus; isotypi CANB, K).

Caespitose perennial to 1.2 m tall, with well developed root system and some roots extending to 40 cm long. Culms solitary, erect, glabrous, smooth, yellowish to pale green, 2–3-noded, nodes glabrous. Leaf sheaths faintly and sparsely hairy, scabrous at the margins, the teeth becoming longer at the auricle. Ligule a very short fringe of hairs. Leaf blades flattened to involute, to 40 cm long, flexuous, with scaberulous margins when young. Inflorescence a divaricate panicle up to 30×8 cm with the branches naked for some distance from the base. Spikelets on pedicels 0.5–1 mm long, 1-flowered, olive-green, ca 2 mm long, acute at the apex. Glumes hyaline nerveless membranes, the lower 0.75×0.3 mm, with an erose apex, the upper $\times 0.3$ mm with an acute apex. Lemma and palea hyaline tapering to the apex, the lemma, faintly 1-nerved, 2

× 0.5 mm, the palea ca 1.6 × 0.5 mm. Anthers 3, ca 0.6 mm long. Lodicules membranous, 0.2 × 0.2 mm. Grain 1 × 0.5 mm, reddish mauve, truncate (Fig. 34).

Queensland. COOK DISTRICT: Barron River Gorge, Jun 1935, *Blake* 9430 (BRI), Jul 1938, *Goy* 406 (BRI); Seven Sisters near Atherton, Feb 1962, *Webb & Tracey* 5858 (BRI, CANB); Mareeba, Mar 1938, *Blake* 13465 (BRI). NORTH KENNEDY DISTRICT: near Euramo, S of Tully, Apr 1945, *Blake* 15804 & *Webb* (BRI, NSW, MEL). LEICHHARDT DISTRICT: Carnarvon Creek, Sep 1940, *White* 11397 (BRI). PORT CURTIS DISTRICT: Rosedale, Nov 1934, *Dovey* 472 (BRI), 1930, *Dovey* G54 (BRI). BURNETT DISTRICT: Mundubbera, Mar 1933, *Bloxsome* 1 (BRI). WIDE BAY DISTRICT: Sandy Creek, Dallarnil-Childers Road, Dec 1939, *Smith* 678 (BRI), Elliot Head Railway Bridge near Bundaberg, Dec 1938, *Goy & Smith* 592. MORETON DISTRICT: Halls Creek, opposite Bribie Island, May 1978, *Elsol* 458 & *Sattler* (BRI); Eagle Heights-Oxenford road, 7 km from Eagle Heights, Mar 1976, *Simon* 2927, *Sharpe & Stanley* (BRI, CANB, K); Kiels Mountain Road, SE of Nambour, May 1977, *Elsol* 127 (BRI); Enoggera Creek, *Bailey* (BRI); between Beerwah and Cruikneck Mountains, Oct 1935, *Goy* 85 (BRI); Camp Mountain, Apr 1940, *Blake* 14165 (BRI); Nudgee, Jul 1913, *White* (BRI); Brisbane, *Bailey* (BRI); Buderim, Apr 1916, *White* (BRI); Toowong Creek, Nov 1934, *Everist* (BRI); Petrie, Jul 1930, *Blake* 6, 12 (BRI); Toowong, Nov 1887, *Simmonds* 651 (BRI); Cedar Creek, 20 miles NW of Brisbane, Dec 1937, *Goy & Smith* 44 (BRI); Cash's Crossing, Jan 1938, *Smith* 260 (BRI); Ferny Grove, Dec 1931, *Everist*, 264 (BRI); Candle Mountain, May 1918, *White* (BRI), Botanic Garden, Brisbane, Dec 1933, *Everist* (BRI).

Probably also in New South Wales.

Material of this species has been included with *S. diander* in the Queensland Herbarium for some considerable time. The characteristic naked zone on the inflorescence branches however separate it from *S. diander* and furthermore the stamen number is different.

In Simon (1980) *S. laxus* is keyed out as *Sporobolus* sp. *Blake* 9430 but the discovery of 3 stamens in the species necessitates a change in the key as follows:

12. Robust plants with a dense inflorescence interrupted only at the base.....
S. indicus, S. africanus, S. fertilis
- More slender plants with a spreading inflorescence or the spikelets arranged in spike-like clusters 15
15. Lower glume truncate or erose; inflorescence branches spreading 16
- Lower glume obtuse; inflorescence branches with spike-like clusters of spikelets..... 17
16. Inflorescence branches bearing spikelets to the base; stamens 2 *S. diander*
- Inflorescence branches naked for some distance at the base; stamens 3 *S. laxus*

× ***Cynochloris reynoldensis*** B. K. Simon, species nova affinis *C. macivorii* Clifford & Everist sed arista longiore flosculi infirmi, carinis glabris flosculorum, apicibus flosculorum acutis vel truncatis; affinis *Chloris ventricosae* R. Br. sed gramine delicatiore, arista flosculi infirmi multo brevior differt. **Typus.** Queensland, Reynolds Creek near Mt Greville, *Simon* 2526 & *Sharpe* (BRI 227424, holotypus; isotypi CANB, K, MO).

A delicate stoniferous perennial to 40 cm tall, postulated to be a hybrid between *Chloris ventricosa* R. Br. and *Cynodon dactylon* (L.) Pers. Culms branched at the base, geniculately ascending from the stolons, glabrous, smooth, 3–6-noded, the nodes mauve in colour up to 2 mm long. Leaf sheaths keeled with hyaline marginal flaps, glabrous except at the apex where there are distinctive white hairs at the auricle and continuous with those at the base of the leaf blade. Ligule membranous with a short ciliolate fringe, to 0.5 mm long. Leaf blades linear, flattened, tapering to an acute apex, scabrous on the margins, to 7 cm × 1.5 mm. Inflorescence consisting of 2–4 digitate spikes up

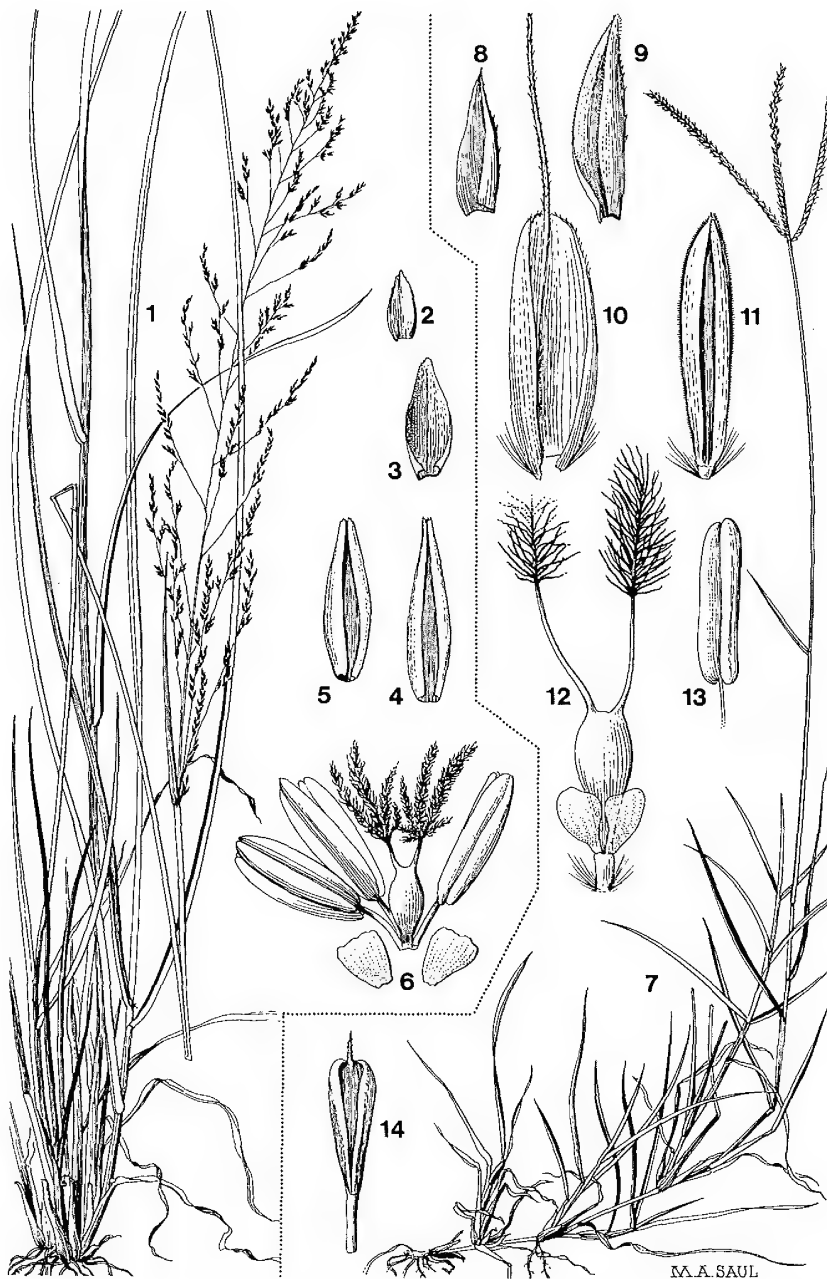


Figure 34. *Sporobolus laxus*. 1, habit ($\times 2/3$); 2, lower glume ($\times 17$); 3, upper glume ($\times 17$); 4, lemma ($\times 17$); 5, palea ($\times 17$); 6, flower and lodicules ($\times 33$). From *Simon 2927, Sharpe & Stanley*. \times *Cynochloris reynoldensis*. 7, habit ($\times 2/3$); 8, lower glume ($\times 17$); 9, upper glume ($\times 17$); 10, lower lemma ($\times 17$); 11, palea ($\times 17$); 12, gynaeceum and lodicules ($\times 33$); 13, anther ($\times 33$); 14, upper lemma ($\times 17$). From *Simon 2526 & Sharpe*.

to 7 cm long, with a distinctive zone of white hairs at the point of branching of the spikes. Glumes keeled, scaberulous on the keels, acute at the apex, the lower 1.75 mm long, the upper 2.25 mm long. Florets 2, the upper much reduced. Lower floret: lemma boat shaped, 2.75 mm long, obtuse to truncate at the apex, with a slightly hairy callus and a short scabrous awn to 2 mm long; palea a spatulate membrane to 2.1 mm long and 0.5 mm wide at the widest point, with scaberulous margins; anthers 3, to 1 mm long; lodicules wedge shaped, to 0.2 mm long; grain not seen. Upper floret reduced to a lemma, truncate at the apex, 1.5 mm long, with a scaberulous awn to 0.5 mm long (Fig. 34).

Queensland. MORETON DISTRICT: Reynolds Creek, SE of Mt Greville, Mar 1975, *Simon 2526 & Sharpe* (BRI, CANB, K, MO).

This is the second report of a natural hybrid between the genera *Cynodon* and *Chloris*. The first (Clifford & Everist, 1964) reported a hybrid between *Cynodon dactylon* and *Chloris divaricata* R. Br. whereas the putative parents involved in $\times C. reynoldensis$ are *Cynodon dactylon* and *Chloris ventricosa*. Although at the time of collection the parental species were not specifically observed in the area of collection both have been collected in regions near to the type locality. In the facies of the spikelet $\times Cynochloris reynoldensis$ appears closer to *Chloris ventricosa* than to *Cynodon dactylon* and initially does not appear to be as intermediate as $\times Cynochloris macivorii$ does between its parental species (Clifford & Everist, 1964). A possible explanation is $\times C. reynoldensis$ represents a production of introgression between the two parents, with the characters of *Chloris ventricosa* having more influence than those of *Cynodon dactylon*. The more conspicuous morphological characters of $\times Cynochloris reynoldensis$ and its parent species are summarised as follows:

<i>Character</i>	<i>Cynodon dactylon</i>	$\times Cynochloris reynoldensis$	<i>Chloris ventricosa</i>
Habit	Stoloniferous and rhizomatous	Stoloniferous	Sometimes stoloniferous
Culm height	to 30 cm	to 40 cm	to 80 cm
Callus vestiture	glabrous	ciliate	ciliate
Surface of lemma	smooth with hairy keel	very sparsely scabrid on keel	sparsely scabrid
Awn of lower lemma	0.1 mm	to 2.1 mm	to 7 mm
Awn of upper lemma	nil	to 0.5 mm	to 4 mm
Inflorescence spike length	to 6 cm	to 7 cm	to 10 cm

Dichelachne parva B. K. Simon; species nova affinis *D. rarae* (R. Br.) Vickery sed culmis brevioribus, paniculis parvis differt. **Typus.** Queensland, near Wyberba, *Blake 4600* (BRI 061721, holotypus).

Caespitose perennial to 35 cm tall with leaves mostly crowded at the base. Culms solitary, geniculately ascending to erect, smooth to slightly scaberulous, glabrous, terete, 2–3-noded, nodes glabrous. Leaf sheaths smooth to slightly scaberulous on the nerves. Ligule membranous, hardly perceptible to 1 mm long. Leaf blades up to 8 cm \times 1 mm, flattened, smooth to slightly hairy on the under surface. Inflorescence a loose panicle 3–8 \times 1–2 cm with up to 30 spikelets, the axis and branches distinctly visible. Spikelets to 5.5 mm long

without the awns. Glumes 3.5–5.5 mm long, each with a central firm keel and lateral hyaline margins, slightly scaberulous on the keel towards the acute apex. Lemma 3.5–4.5 mm long including the 0.5 mm long callus with callus hairs 0.5–1 mm long; awn 10–15 mm long, scaberulous. Palea 3.5–4 mm long. Anthers 3, 0.25 mm long. Ovary 0.5 mm long. Grain furrowed, yellowish-brown, linear-oblong ca 3×0.5 mm (Fig. 36).

Queensland. DARLING DOWNS DISTRICT: near Wyberba, Jan 1933, *Blake* 4600 (BRI); Bald Mountain near Wallangarra, Jan 1933, *Blake* 4476 (BRI). **New South Wales.** CENTRAL TABLELANDS: Katoomba, Jan 1939, *Blake* 13926 (BRI, NSW).

This species is separable from the more widespread *D. rara* (R. Br.) Vickery by its much smaller facies. With further study it may turn out to be a variety of this species, but from this preliminary investigation it appears more different than the subspecies of *D. rara* (Veldkamp, 1974) from each other and is given species rank. It is distinguished from the other Australian species of *Dichelachne* by the characters in Simon (1980) where *D. parva* is referred to as *Dichelachne* sp. *Blake* 4600. The three specimens collected to date come from wet habitats in montane sandy areas of the Queensland granite belt and the Blue Mountains of New South Wales.

Arundinella grevillensis B. K. Simon, species nova affinis *A. montanae* S. T. *Blake* sed culmis brevioribus, foliis basalibus brevioribus filiformibus ferentibus pilos tubercularibus, rhizomatibus longis gracilibus differt. **Typus.** Queensland, Mt Greville, *Simon* 2528 & *Sharpe* (BRI 227421, holotypus; isotypus CANB).

Tufted perennial to 25 cm tall, arising from long slender rhizomes which are woollyhaired at the origin of the culms. Culms branched at the base, many noded with the nodes concealed by the leaf sheaths. Leaf sheaths strongly nerved and with a few tubercle-based hairs. Ligule a short membrane with hairs to 1 mm long. Leaf blades mostly involute, filiform and basal to 4 cm long with sparsely arranged tubercle-based hairs, rarely blades to 7 cm long and wider produced from the central part of the culm. Inflorescence a sparse panicle to 8 cm long of 3–17 spikelets, exerted above the basal foliage. Spikelets 2-flowered, 5 mm long (excluding the awns) on pedicels 2–4 mm long, gaping at maturity. Glumes streaked with pale mauve, firmly membranous with acuminate apices, the lower 4 mm long, 7-nerved, the central nerve slightly scabrous on the back towards the apex, the upper 5 mm long, 5-nerved. Lower floret male. Lemma like the upper glume with the apex less acuminate. Palea a hyaline membrane, acute at the apex, 3.5×1 mm. Upper floret hermaphrodite. Lemma scabrid, coriaceous, 2.5×0.75 mm, truncate at the top, extending into a geniculate awn 4.5 mm long, brown at the base, pale above. Palea 3×0.75 mm acute with lateral flaps enclosing the ovary/grain at the base. Grain 1×0.5 mm (Fig. 35).

Queensland. MORETON DISTRICT: Mt Greville, SE slopes near peak, Mar 1975, *Simon* 2528 & *Sharpe* (BRI, CANB), rocky slopes on southern side, Oct 1961, *Everist* BRI 030272 (BRI), rocky slope on NE face, Aug 1973, *Durrington* 728 & *Sharpe* (BRI), crevices in steep rocky slopes and ledges (trachyte), Apr 1962, *Blake* 21709 (BRI), crevices and rocky slopes on southern side, *Everist* BRI 038002 (BRI).

This species was originally thought to be a dwarf form of *Arundinella montana* S. T. *Blake* but its distinctive habit of low stature and filiform basal leaves was thought enough reason to separate it from this species. In this respect it differs as much in its habit as *A. montana* does from *A. nepalensis* Trin.; indeed all three species are almost identical in their spikelet

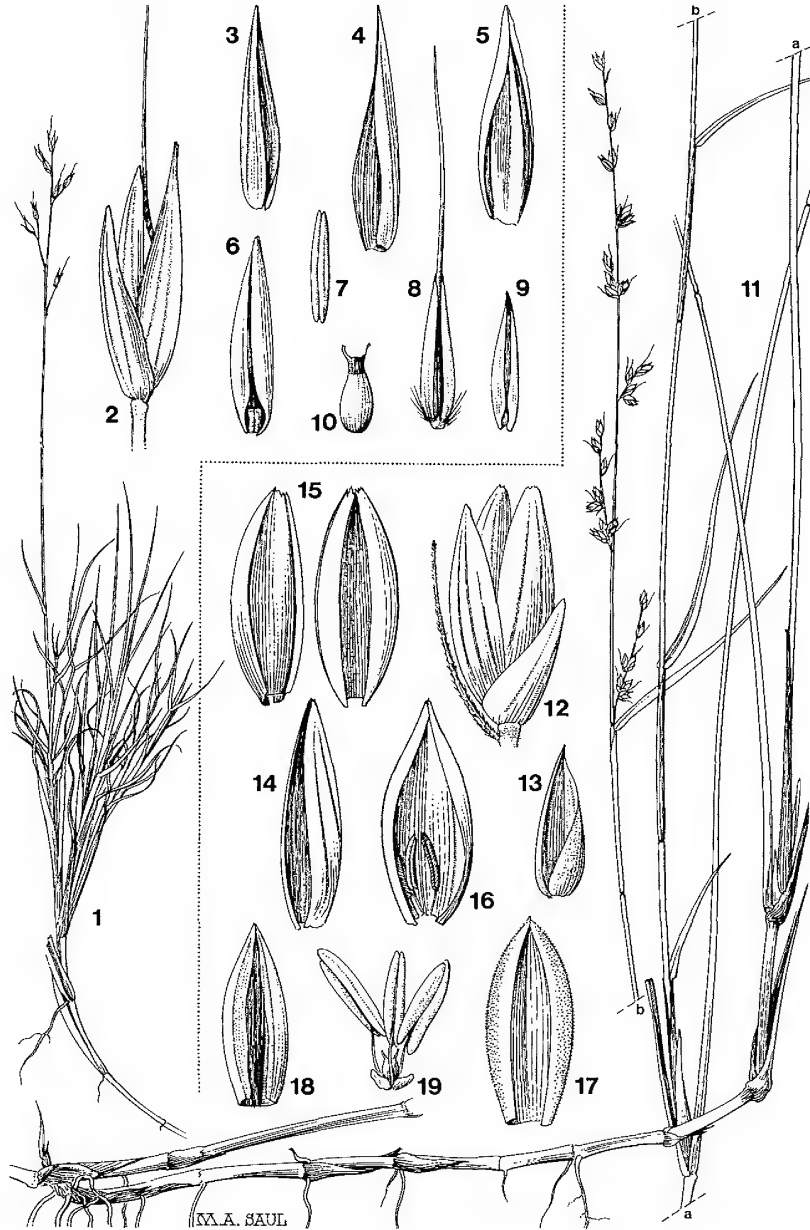


Figure 35. *Arundinella grevillensis*. 1, habit ($\times 2/3$); 2, spikelet, side view ($\times 8$); 3, lower glume ($\times 8$); 4, upper glume ($\times 8$); 5, lower lemma ($\times 8$); 6, lower palea and lodicules ($\times 8$); 7, anther of lower floret ($\times 8$); 8, upper lemma ($\times 8$); 9, upper palea ($\times 8$); 10, young grain of upper floret ($\times 17$). From *Simon 2528 & Sharpe. Paspalidium grandispiculatum* 11, habit ($\times 2/3$); 12, spikelet, side view ($\times 8$); 13, lower glume ($\times 8$); 14, upper glume ($\times 8$); 15, lower palea, dorsal and ventral views ($\times 8$); 16, lower lemma and anthers ($\times 8$); 17, upper lemma ($\times 8$); 18, upper palea ($\times 8$); 19, flower of upper floret. From *Pearl 1480 and Pearl 1913*.

morphology, and differ only by vegetative characters. Presently it is known only from five collections on Mt Greville and there is a need to establish whether it is endemic there or does occur on other mountains.

For key characters distinguishing this species from other Australian species of *Arundinella* see Simon (1980) where *A. grevillensis* is referred to as *Arundinella* sp. Simon 2528.

Paspalidium grandispiculatum B. K. Simon, species nova affinis *P. gracilis* S. T. Blake sed spiculis grandioribus, culmis lignosis, rhizomibus lignosis longis differt. **Typus.** Queensland, 14 km N of Helidon, Peart 1990 (BRI 255048, holotypus; isotypi BRI, CANB, K, L, MO, NSW).

Perennial to 150 cm tall with robust woody rhizomes. Culms woody, smooth, glaucous to pruinose on exposed sections, 7–9-noded, branched at some nodes throughout the culm length. Leaf sheaths glabrous, smooth, rounded on the back. Ligule a ciliate fringe, with cilia to 1 mm long. Leaf blades linear to 8 cm long, smooth, scaberulous on nerves particularly on the underside. Inflorescence a raceme to 16 cm long of secondary racemes to 3 cm long in which the spikelets are irregularly arranged on the secondary racemes. Inflorescence axis and pedicels, which are up to 1 mm long, scabrous-pubescent. Spikelets 3.5–4.5 mm long at maturity, 2-flowered, each accompanied by a scabrous bristle 3–4 mm long arising from the pedicel beneath the lower glume. Lower glume membranous, about half the spikelet length, indistinctly 5-nerved, scaberulous on the outer surface, obtuse at the apex, embracing the spikelet at the base. Upper glume similar in texture to the lower glume, three-quarters as long as the spikelet, 7–8-nerved, very finely scaberulous on the outer surface, obtuse to acute at the apex. Lower floret male with three anthers; lemma similar in all respects to the upper glume except that 5-nerved; palea 0.5 mm shorter than the lemma, hyaline, 2-keeled. Upper floret hermaphrodite, plano-convex, slightly shorter than the spikelet, acute at the apex; lemma crustaceous, very finely rugulose, 5–7-nerved, embracing the sides of the palea; palea crustaceous, cymbiform with a flattened back and rounded sides, 2-nerved. Anthers 3, ca 2.5 mm long. Lodicules ca 0.5 mm long. Grain to 3×1.5 mm, swollen at maturity, embryo ca $\frac{1}{5}$ the grain length (Fig. 35).

Queensland. MORETON DISTRICT: Ravensbourne-Helidon Road, Feb 1979, Peart 1480 (BRI); Nov 1979, Peart 1913 (BRI, CANB); Mar 1980, Peart 1991 (BRI, CANB, MEL); 14 km N of Helidon, Feb 1980, Peart 1990 (BRI, CANB, K, L, MO, NSW); Beaudesert, Apr 1979, Thomas in Peart 1454 (BRI).

Paspalidium grandispiculatum is distinguished from all other Australian species of *Paspalidium* by its large spikelets and characteristic woody culms arising from robust woody rhizomes. Most other species of *Paspalidium* possess contracted rootstocks and sometimes contracted rhizomes but not the elongated rhizomes of *Paspalidium grandispiculatum*. The species appears to have only been collected since 1979 in two localities of the Moreton district in wet sclerophyll *Eucalyptus* forest.

Eragrostis longipedicellata B. K. Simon; species nova affinis *E. lacunariae* F. Muell. ex Benth. sed pedicellis multo longioribus, spiculis complanatis, foliis filiformibus basalibus pro parte maxima differt. **Typus.** Queensland, Proston, Blake 14213 (BRI 250843, holotypus; isotypi CANB, K, L.).

Caespitose perennial to 80 cm tall. Culms smooth, terete, pilose, unbranched, with slightly swollen butt at the base, up to 4-noded, nodes

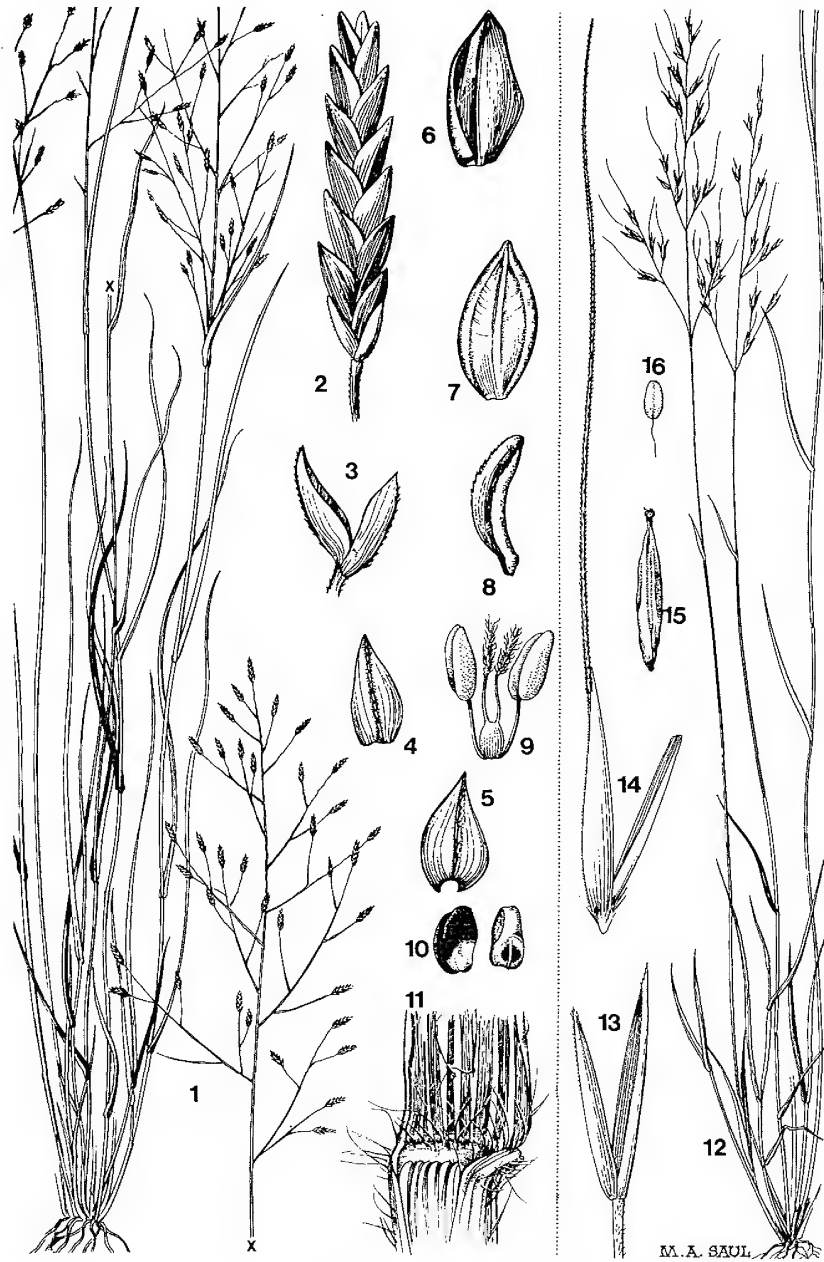


Figure 36. *Eragrostis longipedicellata*. 1, habit ($\times 2/3$); 2, spikelet ($\times 8$); 3, glumes, side view ($\times 17$); 4, lower glume, dorsal view ($\times 17$); 5, upper glume, dorsal view ($\times 17$); 6, lemma, dorsal view ($\times 17$); 7, lemma, ventral view ($\times 17$); 8, palea, side view ($\times 17$); 9, 2 anthers, young ovary and stigmas ($\times 33$); 10, grain, side and dorsal views ($\times 33$); 11, junction of leaf sheath and blade showing ligule ($\times 8$). From Blake 14213. *Dichelachne parva*. 12, habit ($\times 2/3$); 13, glumes, side view ($\times 8$); 14, lemma and palea ($\times 8$); 15, grain ($\times 8$); 16, anther ($\times 17$). From Blake 4476 & 4600.

yellowish. Leaf sheaths sparsely pilose, covering the culm for most its length. Ligule a short ciliolately fringed membrane to 0.2 mm long. Leaf blades sparsely pilose, terete, filiform and wavy, to 10 cm long, arising mostly from the base of the culm. Inflorescence an open divaricate panicle with long branches and pedicels, 9–18 × 3–9 cm. Spikelets 4–8 × 1.5–2 mm of 7–14 purple to yellowish florets. Glumes 1–1.5 mm long, purplish tinged scabrous on the keel, the lower slightly shorter. Lemma 1.5–2 mm long, 3-nerved, acute at the apex. Palea 2-nerved, purple tinged, scabrous on the keels, ca 1 mm long. Anthers 3, 0.3 mm long, stigmas 2. Grain 0.6 × 0.4 mm, orange coloured, with the embryo 0.3 mm long (Fig. 36).

Queensland. LEICHHARDT DISTRICT: Annandale, Aug 1978, *Anderson* 485F (BRI). WARREGO DISTRICT: Mt. Brandon Station, Apr 1936, *Blake* 11146 (BRI). MARANOVA DISTRICT: 20 miles W of Mitchell, Mar 1936, *Blake* 10493 (BRI). BURNETT DISTRICT: Eidsvold, May 1956, *Blake* 20002 (BRI); Mundubbera, Mar 1933, *Bloxsome* 4 (BRI); Narayen, Feb 1968; *Tohill* N495 (BRI); Proston, May 1940, *Blake* 14213 (BRI, CANB, K, L). DARLING DOWNS DISTRICT: between Miles and Drillham, Feb 1935, *Blake* 7693 (BRI); 3 miles E of Darr Creek, Dec 1979; *Lithgow* 692 (BRI, K, NSW).

For key characters distinguishing this species from other Australian species of *Eragrostis* see Simon (1980) where *E. longipedicellata* is referred to as *E. sp.* Blake 11146.

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